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Market Study of Potential Energy Services Providers for the Public Sector in Mexico

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PA Government Services Inc., Washington, DC, a subsidiary of PA Consulting Group, prepared this report, drawing on its consultants experience garnered from innovative and far-reaching development work in the electricity sectors of over 150 countries across the past 30 years. Mark Oven of PA and Ignacio Sanchez and Rubén Torres of CySTE in Mexico co-authored this report. Emad Hassan of Nexant, Inc. provided supervision and review. .

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1 INTRODUCTION

The public sector in Mexico offers a great potential for broad and highly cost-effective energy efficiency improvements due to its significant consumption and high electricity costs. In addition, its relatively homogeneous end-use consumption patterns offer the potential to easily replicate projects, and possibly even bundle procurement contracts. Furthermore, over 10 years of CONAE energy efficiency promotion, training and programs have developed technical capabilities and prepared many public servants to take action to increase energy efficiency. CONAE has documented significant savings efforts throughout this sector, but its data show that these savings are largely limited to waste reduction and operations improvement. Broader implementation, requiring substantive investment, is not widespread: government budgets do not allow the kinds of resources needed to implement efficiency in an important way.

In addition to the budget limitation, a number of other barriers impede energy efficiency in the Mexican public sector, as they do in most countries and in a number of sectors:

- insufficient information and expertise about energy efficiency technologies, products, practices and projects among government facility managers;
- separation of functions and need for better coordination between the facility management and the procurement departments
- rigid procurement practices that do not allow (or appear to allow) life-cycle costing, services procurement, multi-year contracting or other mechanisms to encourage the adoption of energy-efficient equipment and systems;
- lack of access to multi-year financing, either through budgeting or appropriate financing, for typical 3-5 year energy efficiency projects;
- lack of incentives to promote energy savings projects, since energy is budgeted centrally, and paid from budgets allocated specifically for this purpose.

CONAE has been working hard to overcome these barriers, having developed a strong public sector program including data collection, information dissemination, training and technical assistance. In the state and municipal areas of the public sector, the implementation rate has been higher than the federal sector, as FIDE has been offering a variety of financing programs to implement projects. CONAE has continually expressed a clear need for external financing to pick up the slack in the federal sector, and to increase implementation throughout the public sector in Mexico.

The U.S. Agency for International Development (USAID) and other donor agencies have supported the development and implementation of many energy efficiency programs over the years, promoting new technologies, focusing on project identification and development, and helping build the capacity of private sector energy efficiency firms to participate in, and grow, the energy efficiency market. Many of these programs have included support for energy services companies (ESCOs), which have proven successful in providing a variety of technical, project and financial services to implement energy efficiency projects. Among the characteristics of ESCOs is that they provide a service (efficient lighting, including maintenance) rather than a product (efficient lamps), that they can provide financing, and that they can work on a performance basis (i.e., receiving payment from the energy savings of a project once these begin to accrue). Efforts to create and train ESCOs have been an important part of many energy efficiency programs, in both the private and public sectors.

In Mexico, PA Government Services, under contract to Nexant, Inc., with funding from USAID/Washington, and local collaboration from the National Commission for Energy Savings (CONAE), is implementing a program that attempts to promote the concepts of ESCO operation to begin to overcome the barriers to public sector energy efficiency implementation. Rather than creating and training ESCOs, the project objective is to develop, test, disseminate and scale-up a bidding process for energy efficiency transactions in the public sector. The bidding documents will be adapted to be consistent with the current procurement practices in public sector entities, focusing on four elements that will make these projects attractive, replicable and sustainable: services bundled with equipment purchase, rather than separate procurement of equipment and possibly services; multi-year rather than single-year agreements; third-party rather than government financing; and payment on system performance rather than simply on equipment delivery. The project will select and provide technical assistance to two pilot government entities, which will carry out the adjusted solicitations. This will require energy services providers in Mexico to apply elements of ESCO operation to their responses to these solicitations. The project will accompany the solicitation, selection, implementation and monitoring activities to ensure success and document lessons learned in the two pilot projects.

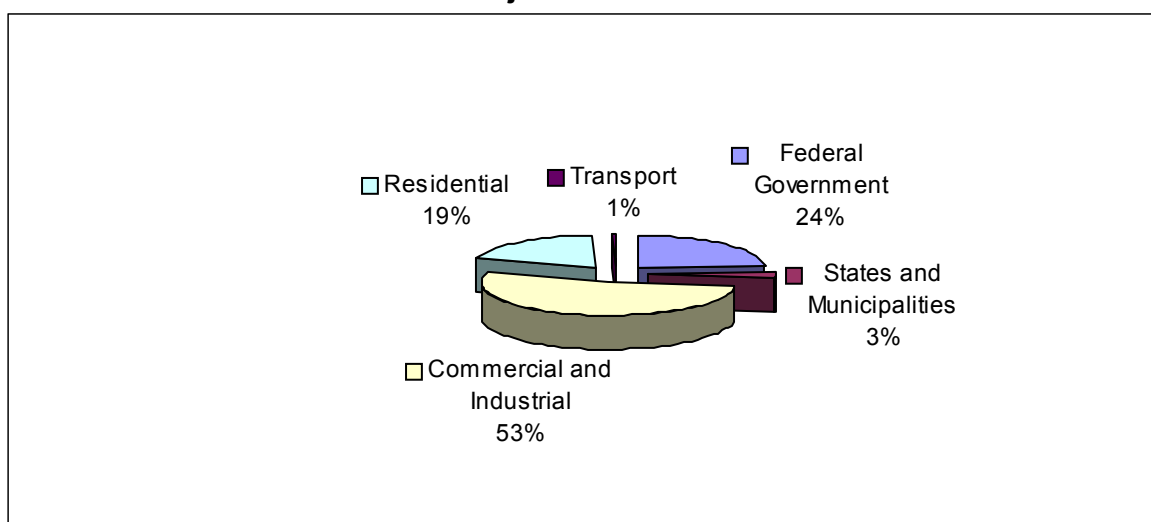
In order to provide background and context for this pilot activity, this study attempts to provide a brief overview of two important market aspects that affect its success: 1) energy efficiency potential in the Mexican public sector; and 2) the capacity and experience of energy services providers in Mexico to provide ESCO-type services to the public sector.

2 ENERGY EFFICIENCY IN THE PUBLIC SECTOR

2.1 Energy Consumption

The energy consumption of the public sector in Mexico represents a significant portion of national energy consumption. Exhibit 1 shows the distribution of the electrical consumption by general sectors in Mexico. By itself, the federal sector, target of this program, is quite important, representing 24% of national electricity consumption. Combined with state and municipal agencies, the public sector accounts for well over a quarter of national electricity consumption.

Exhibit 1. Sectoral Breakdown of Mexico National Electricity Consumption – Projected for 2006



Source: CONAE, 2005

2.2 Electricity Tariff

In February 2002, a new regulation went into effect, increasing the electricity tariff, for the federal public sector only, by a published factor of 2.5 times the appropriate tariff. A number of institutions and entities were exempt from this increase (certain water pumping applications, schools and universities, etc.), but the majority of the federal buildings and operations were immediately and significantly affected. This multiplier is still applied, resulting in rates as high as US\$ 0.20-35/kWh, depending on the voltage level and usage.

These high tariff levels should by themselves increase conservation by the different entities. However, this has not been the case, since the electricity bills are paid from line item budgets centrally allocated by the federal Secretary of the Treasury.

Still, the high level of federal electricity consumption, combined with the extremely high tariff levels imply that there is a broad and significant portion of energy savings available at very attractive investment rates.

2.3 Preliminary Estimate of Potential Savings

An estimate of potential savings is an important step in developing energy efficiency activities and programs, as well as in setting targets to ensure their evaluation. CONAE develops annual target savings for its program activities in the public sector, and tracks the programs' performance. This section makes a preliminary effort to estimate the potential energy savings in an attempt to understand the magnitude of the effect of eventual programs, and to help build a rationale for them.

CONAE, through its public sector lighting inventory activities, has developed a database of approximately 1600 individual buildings that represent a fraction of the consumption of the sector. For each of these buildings, the inventories, developed under CONAE direction by the building facilities and maintenance staff, could allow an eventual estimate of savings potential. PA experience in a small number of buildings in the federal public sector, and over 50 buildings in the Mexico City municipal government, can be combined with CONAE building data and used to provide a simple extrapolation of savings potential.

Exhibit 2 presents a very initial estimate by PA based on CONAE and federal government data in Mexico. PA experience in detailed building energy audits and in walk-through energy audits in Mexico shows a savings range of 15-30% savings at paybacks of 2-3 years, congruent with CONAE estimates. This is also consistent with savings numbers from federal buildings in other countries, albeit with shorter paybacks due to the extremely high tariffs for federal entities in Mexico. In Exhibit 2, a 20% savings potential at a 3-year payback is used to estimate savings potential for buildings. For non-building facilities, a lower potential of 10% is used in order to provide a conservative estimate.

Exhibit 2. Preliminary Estimates for Mexican Federal Sector Savings and Investment Potential

1072 buildings in CONAE inventory database (2002-2005); consumption = 351.4 GWh/y
38,493 federal buildings in Mexico ¹ ; prorated consumption = 12,620 GWh/y
51,694 GWh/y total federal sector consumption in Mexico ²
39,074 GWh/y federal non-buildings consumption
Energy savings potential: 20% of building consumption, and 10% of remaining consumption
Total energy saving potential in Mexican federal sector: 6,431 GWh/y
Value of potential energy savings in Mexican federal sector @ US\$ 0.20/kWh: \$ 1.29 billion/y
Value of potential energy savings in Mexico federal buildings: \$ 504 million/y
Investment required at combined average payback of 3 years, Mexican federal sector: \$3.86 billion

¹ 5^o Informe de Labores del Gobierno Federal, 2005 (Federal Government annual report)

² CONAE projections for 2006

Based on the data and assumptions described, the Mexican federal sector offers an annual savings potential of \$1.29 billion, and a market of nearly \$4 billion in energy efficiency equipment and services.

3 ENERGY SERVICES PROVIDERS

This section presents the national-level view of Mexican companies that have the infrastructure and capacity to offer energy efficiency services, and identifies their level of interest in participating in the current project as potential bidders or bidding partners in a procurement that contains elements of ESCO operation, as described in Section I.

Companies included in this study are those that offer any of the following technical energy efficiency areas of interest to the project

- Lighting
- Control and automation
- Electrical installations
- Energy quality
- Power factor correction
- Air conditioning, and associated equipment
- Motors and drives

Based on their responses to a survey, a profile of each company was developed, and their potential for participating in the ESCO market was evaluated.

3.1 Methodology

3.1.1 List of Companies

A database of companies meeting the criteria described above was obtained from the following two sources:

- FIDE, the Trust Fund for Electric Energy Savings, a public-private partnership that has been the premier energy efficiency implementation agency in Mexico since 1990. FIDE offers a program to certify energy efficiency consulting companies that focuses on the companies' experience in project implementation. The FIDE certification process is very rigorous and linked with the National Chamber of Consulting Firms (CNEC). Documentation for review include: company description and history, detailed qualifications of projects performed and objective results, staff resumes and experience description, hourly rates, and other detailed information, which is reviewed by a committee made up of FIDE and CNEC. All of the FIDE-certified companies are included in the project database; in addition, a number of other companies who had done work for FIDE were also obtained from FIDE and included in the list.
- CONAE, the national-level energy conservation agency, which provides a list of potential energy efficiency consulting firms as part of its information services. This list is determined and revised regularly by an internal review committee in CONAE.

Each of these companies was contacted by telephone in order to validate their contact information, including contact person, address, and telephone. The resulting list of 45 validated firms is presented in Annex 1.

3.1.2 Development of the Survey

The team developed a survey with several objectives: characterization of the company and its lines of business; understanding the company's experience in energy efficiency implementation; obtaining information on the tendencies of companies to subcontract or otherwise work together, and gauging the company's interest in participating in the pilot public sector procurement solicitations to be developed under our project.

The survey was reviewed internally and with CONAE; a small test of the survey was performed within the team. A copy of the final survey form is presented in Annex 2.

3.1.3 Application of the Survey

The full survey form in Annex 2 was sent to each of the 45 companies by fax and/or e-mail, including an introductory explanation of the

Telephone follow-up was used to provide a broader explanation of the survey, offer reminders, set up conference calls for interviews, and answer questions. The bulk of the completed surveys resulted from telephone interviews of the company representatives, following the survey guide. A small number of the surveys were filled out during personal meetings with company representatives. All of the surveys were completed over a two-month period ending in mid-May 2006.

A total of 19 surveys were completed, representing 42% of the initial list of companies, and covering all but a few of those known to the team to be active in the energy efficiency market in Mexico. While the reasons for the 58% non-participations are not clear, PA experience in the Mexican market leads to the following list of possible explanations:

- many companies simply don't have an interest in ESCO projects; the concept has been around a long time and has still not proven itself successful in Mexico; furthermore, the need for financing and alliances is a huge entry barrier for many companies that are used to operating independently
- public sector contracting is not for every company; many have suffered from late or incomplete payments; in addition, the costs of registering, and obtaining and maintaining the required permits and approvals is also a barrier
- the large volumes of projects supported by financing from FIDE may have spoiled many companies, somewhat reducing their exposure to the open market (although FIDE is an exceedingly demanding client), and perhaps diminishing their willingness to take on greater risk in new project areas.

3.2 Survey Results

A summary of the companies that provided survey data is presented in Exhibit 3, where they are grouped by the following principal activities, and ordered by number of employees.

- Lighting manufacturers or vendors
- Capacitor manufacturers

- ESCOs
- Consulting firms
- Electrical contractors
- Product representatives
- Lighting project developers

A number of the companies could qualify in more than one activity category, but they are grouped in the principal line of activity as expressed in the survey interview.

**Exhibit 3. Summary of Energy Efficiency Services Providers in Mexico
by Principal Line of Activity**

NAME OF COMPANY	ADDRESS	PHONE NUMBER	FAX NUMBER	CONTACT PERSON	NO. OF EMPLOYEES
MANUFACTURERS OF LIGHTING EQUIPMENT					
GE Comercial Materials, S.A. de C.V.	Av. Churubusco 3400 Nte, Monterrey, N.L.	81- 8318-5600	81 – 8318-5600	Ing. Roberto Torrijo	>1000
Acuity Brands	Lago Victoria #74 PB	5250-6214	5254-1774	Jesús Gloria	>100
PEBER ILUMINACIÓN, S.A. DE C.V.	Interceptor Pte No. 16	5872-6066	5872-69845	Raúl Arroyo	100
Philips Mexicana, S.A. de C.V.	Av. La Palma No. 6 San Fernando, La Herradura, C.P. 52784 Huixquilucan, Edo. Mex	5269-9000	5269-9150	Ing. Germán Villalobos Alarcón	No aplica
MANUFACTURERS OF CAPACITORS					
INELAP S.A de C.V.	Calle 2 No. 7, Fracc. Alce Blanco, 53370 Naucalpan, Edo de México	50932233	50932243	Ing. Santiago Barcón Palomar	80
ESCOs					
Optima Energía	Hidalgo 916-B Col. La Fama, Santa Catarina N.L. 06100	(81)83362233	(81)83361205	Ing. Daniel Gómez Junco B. / Director comercial	25
DIRAM, S.A. de C.V.	Guillermo Prieto #150, Col. Palo Blanco, Garza García, N.L.	81-8338-8668	81-8338-9025	Ing. Luis Ramón	16
CONSULTING FIRMS					
Entidad de Control y Asesoramiento S.A. de C.V.	Melchor Ocampo No. 198 Torre A Desp. 3B	01-55-91170526	01-55-91170525	Germán Augusto Cárdenas Rojas	82
Consultores en Energía S.A de C.V.	Manuel Ma. Contreras # 66-PH	5592-6192	5592-6192	Ing. Manuel De Diego Muñoz	12
Ergon Plus Ingeniería, S.A. de C.V.	Bugambilias 607, flores del Valle, Veracruz, Ver. México	01-229 9218173	01-229 1303377	Ing. Ramón Rosas Moya	11
PRO-ENERGÍA, S.A. de C.V.	Playa Azul S/N, Col. La Bomba, Chalco Edo. México	55 5975-6415	55 5975-6297	Ing. Cirilo Mejía Pérez	10
Genertek, S.A. de C.V.	Buen Tono no. 109 Col. Industrial	57593511	51591858	Ing. Alex Ramírez Rivero	9 fijos, 16 eventuales
Promoción y Control Profesional S.A de C.V.	Latinos Num. 174-A Col Moderna, 03510 México, D.F. Oficina: Puebla # 308-B, Col. Roma, 06700, México, D.F.	9149-1115	5207-9991	Jorge Nevarez Jacobo	5
ELECTRICAL CONTRACTORS					
TRG Tecnologías, S.A de C.V.	Av. Uno No. 86-11	5515-9986	5515-9986	Ing. Raúl Romero García	25
TELVEMEX, S.A. DE C.V.	Calzada de Tlalpan # 1929, Col. Parque San Andrés, C.P. 04040	5549-6960	5549-6960	Ing. Edgar Velázquez Guzmán	13
Claremant, S.A. de C.V.	Eduardo Genner #23 Col. Pino IMPI, del Iztacalco	5711-8615	5711-8615	Jesús Reyes Loyos	7
PRODUCT SALES REPRESENTATIVES					
Juan Roberto Rodríguez Cisneros y/o Interprise	Jacarandas No. 41 Col. Jardines de Atizapan de Zaragoza	5824 3765	5824 3766	Juan Rodríguez	10
LIGHTING PROJECT DESIGNERS					
Avant Garde Technologies, S.A. de C.V.	Marti No. 53, Col. Escandon	5276-1238	5276-0886	Marco Gongora	14
Consultores en Iluminación Profesional	Miguel Bernal #41, Col. Magisterial Vista Bella, C.P.84050, Tlanepantla	2628-2197 al 99	2628-2197	Alejandro ochoa	8

3.2.1 Company Lines of Business

The primary lines of business of the different companies were established based on the following options:

- Equipment representative/vendor
- Electrical/mechanical contractor
- Energy savings consultant
- Maintenance services provider
- Financial services provider
- Other

These results are summarized in Exhibit 4. Twelve companies indicated they were equipment representatives or providers. Among these are three large companies specializing in lighting: Philips Mexicana, General Electric and Acuity Brands, all of which are solely product vendors and representatives, and do not offer any other services.

Four companies have the infrastructure and experience to operate as electrical installation contractors. Eleven companies claimed to offer consulting services in energy efficiency. Eight companies, on the other hand, indicated experience in offering maintenance services.

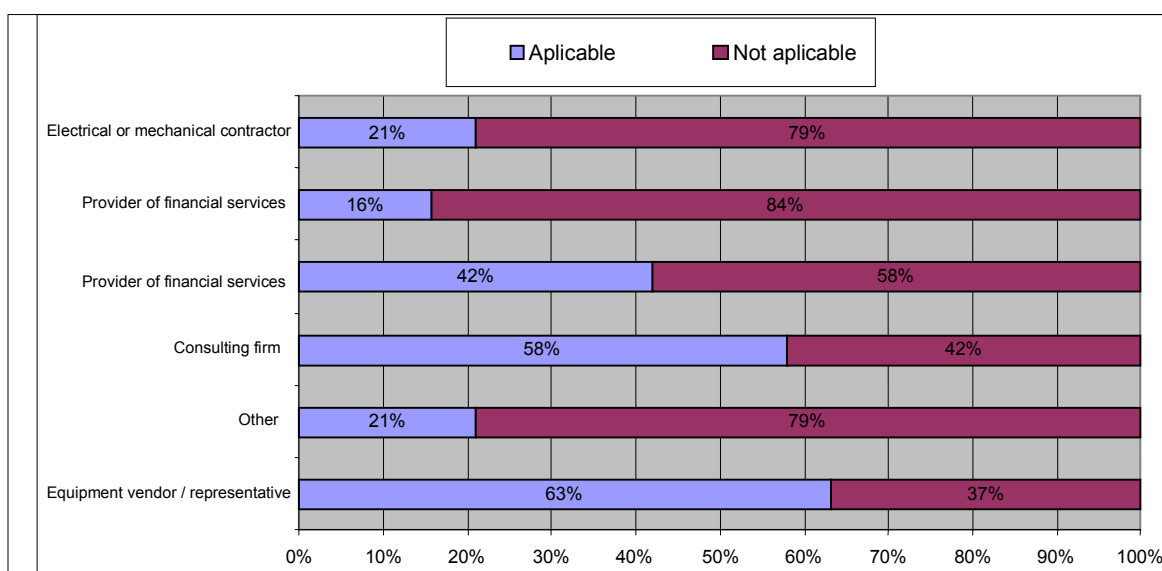
Only three companies have the capacity to offer financial services for implementation of energy efficiency projects:

- Diram, S.A. de C.V.
- Óptima Energía, S.A. de C.V.
- Promoción y Control Profesional (the financial services are limited to financing importation of products).

Finally, four companies claimed to offer other types of activities, including:

- Manufacturing of lighting equipment
- Processing and production of dried fruit
- Occasional activities in maintenance services and financial services.

Exhibit 4. Business Lines of the Companies



3.2.2 Subcontracting of Services

To understand the companies' capacities to offer services, the survey asked which services they subcontract. Only six companies do not subcontract, but maintain the capabilities to carry out their services with in-house staff (see Exhibit 5):

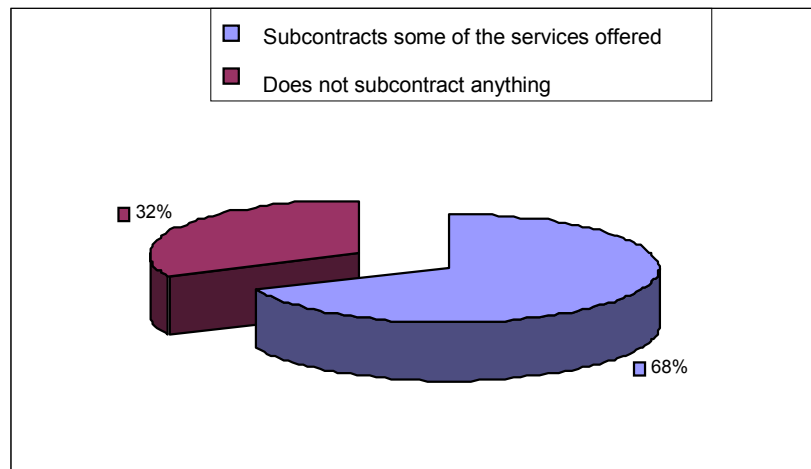
- Claremant, S.A. de C.V.
- Avant Garde Technologies, S.A. de C.V.
- PEBER ILUMINACIÓN, S.A. DE C.V.
- Entidad de Control y Asesoramiento S.A. de C.V.
- Philips Mexicana
- GE Comercial Materials, S.A. de C.V.

Three of these companies specialize in the commercialization of lighting equipment, a fourth in electrical contracting, and two, the large lighting companies, are only equipment providers, letting their distributors participate directly in the projects.

More than half the companies interviewed, agreed that they subcontract some of the services they offer, putting forth the following elements of justification:

- The installation is not in their primary sector of interest.
- Since they offer integral projects, they install and provide maintenance services using different equipment providers. Similarly, other companies have access to financing for projects from different sources, depending on the application.
- Depending on the size of the job, electrical installations are sometimes subcontracted.
- Some companies don't have the technical and the human resources to install high efficiency equipment such as lighting, air conditioning, capacitors, demand controllers, motors or variable speed drives.
- Electrical wiring installations are subcontracted, especially in times of high project demand from the client.

Exhibit 5. Level of Subcontracting of Services



3.2.3 Areas of Equipment Sales

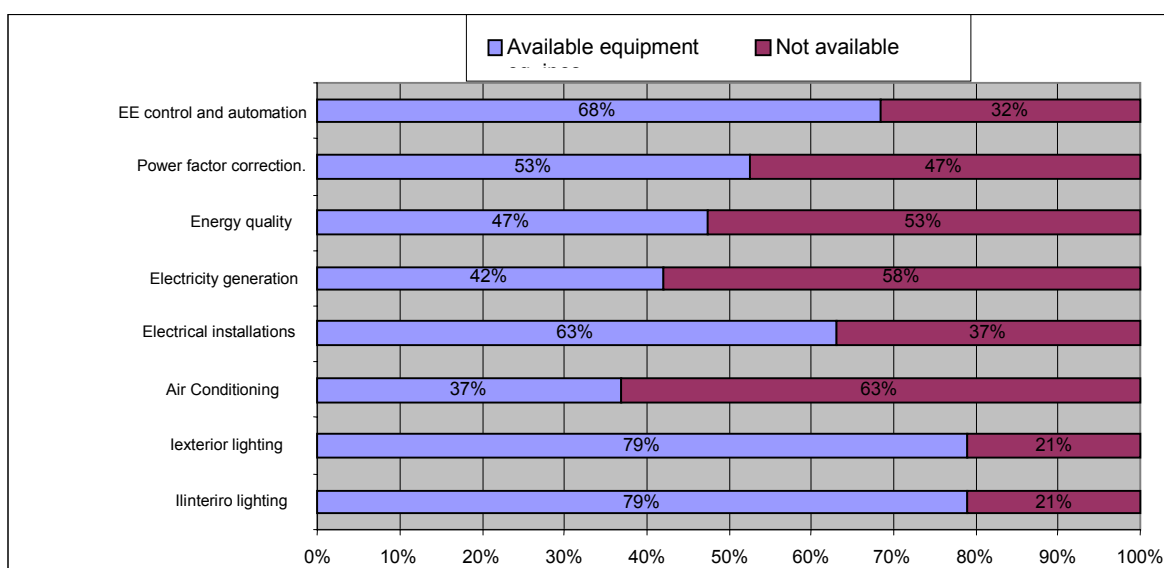
Companies were asked which equipment or technologies they provided, based on the following list applicable to public sector buildings:

- Interior lighting
- Exterior lighting
- Air Conditioning
- Electrical installations
- Generation of electricity
- Energy quality
- Power factor correction
- Control and automation for energy savings

Results are summarized in Exhibit 6. Fifteen companies commercialize external lighting equipment. The same number sells exterior lighting equipment. Seven companies sell air conditioning equipment, and 12 of them are involved in electrical installations. Eight companies participate in technologies for electricity generation, nine on energy quality, and ten in power factor correction.

Finally, 13 companies sell control and automation equipment for energy savings, such as: timers; time-of-use programmers; occupancy sensors; centralized control systems; demand controllers; remote monitoring systems; on-site real-time monitoring; and lighting controls.

Exhibit 6. Equipment Availability among Surveyed Companies



Five companies commercialize other types of technologies and products:

- Measuring equipment
- Inverse osmosis plants; heat exchangers, flow reducers, water treatment systems
- Training in energy efficiency subjects
- Smoke sensors and alarms
- Integration with daylighting systems.

3.2.4 **Equipment Representatives/Vendors**

Nine companies are representatives or providers of equipment, and two are manufacturers. Among the brands represented are the following:

- Energy quality: INELAP Capacitores
- Air conditioning: Tecsa, York, Carrier, Mirage, Madra, Planelec, ICSA
- Lighting: Osram, Philips, GE, Construlita, Holophone, ABB, D. Controls, Cooper Lighting, Litonia, Thomas Lighting, Magg, Tecnolite, Enerlux, Sola Basic, SLI, American Electric
- Electrical installations: Conductores Monterrey, Condulac, Stefc
- Control and automation: Control-Danfoss, Lutron, Watt Stopper, GE Control and Distribution Equipment.

3.2.5 **Experience in Implementation of Energy Efficiency Projects in the Public and Private Sectors**

There is across-the-board experience in developing energy efficiency projects for the private sector (17 companies, or 89%), while a smaller group claims to have experience in the public sector (13 companies, or 68%). The 2 companies that claim not to participate are equipment manufacturers, whose policy is to work with the final client through a distributor or consulting firm.

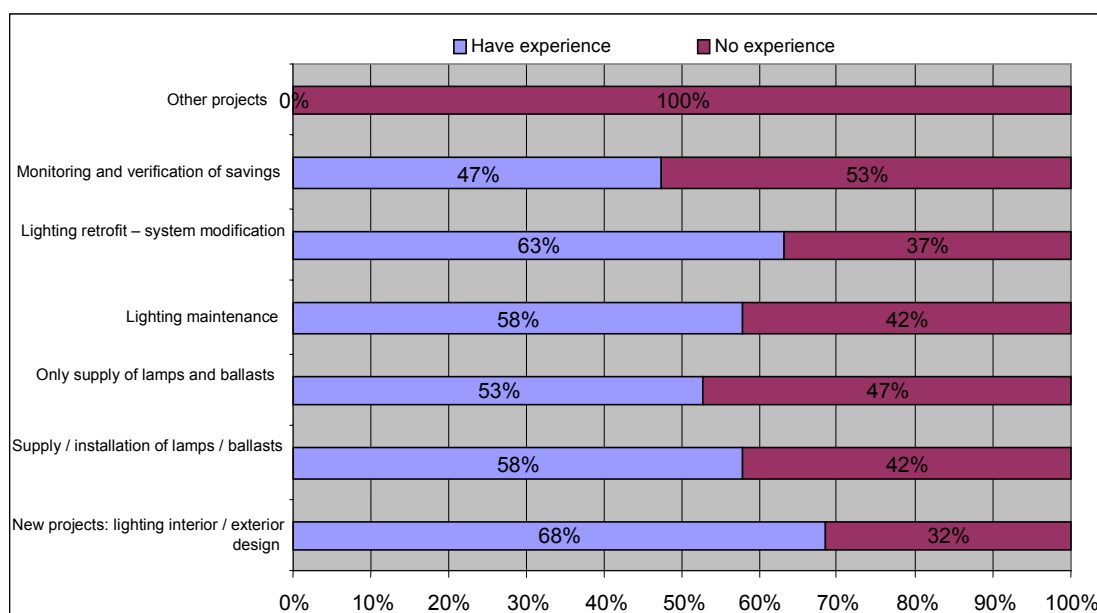
3.2.6 Number of Projects Developed

This information was relatively incomplete, as it required significant detail from the companies. Only the three companies below provided this information, referring to lighting, motors, air conditioning and power factor correction projects. The total number of projects developed by these three companies totals more than 1130 projects.

3.2.7 Experience in Specific Types of Projects

Exhibit 7 provides a brief summary of the results of this portion of the survey. Projects appear to be fairly uniformly distributed over the different types. No write-ins were provided for projects in the “Other” category.

Exhibit 7. Company Experience in Specific Types of Projects



3.2.8 Size of Energy Efficiency Projects

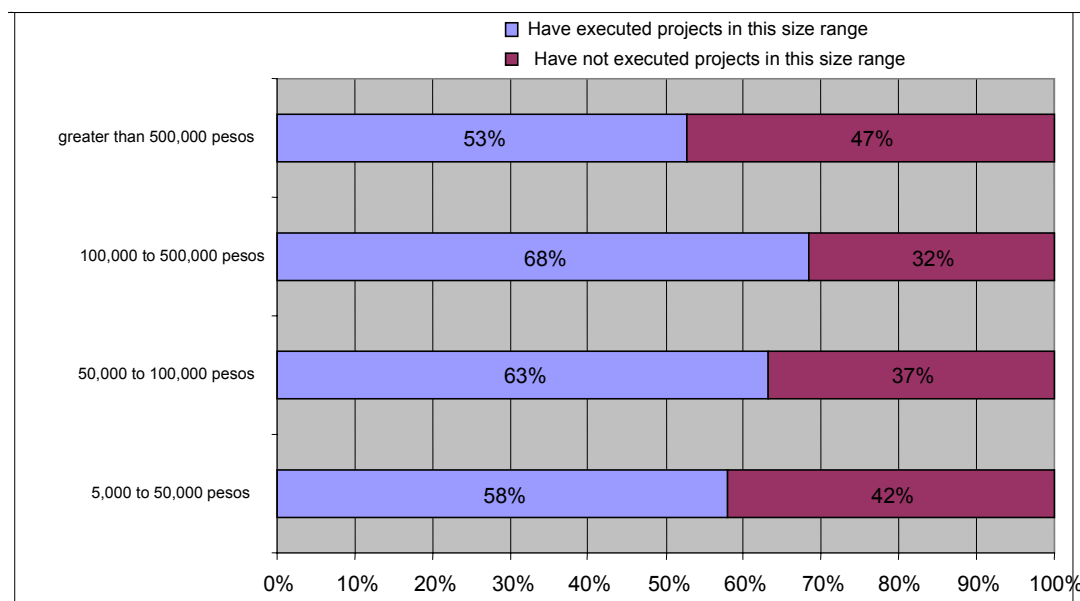
The value of energy efficiency projects implemented is considered a good indicator of the types of experience and breadth of capabilities that local energy services companies may offer. Companies were allowed to select more than one size category for this question. However, actual numbers of projects were not available from the respondents.

Eleven companies have developed small-scale projects (investments of 5,000 to 50,000 pesos, or US\$ 500-5,000); twelve companies have executed projects with investments between 50,000 and 100,000 pesos (US\$ 5-10,000), and thirteen companies have done projects between 100,000 y 500,000 pesos (US\$ 10,000-50,000). Finally, ten companies have carried out projects of value greater than 500,000 pesos, or US\$ 50,000.

This information is presented graphically in Exhibit 8. It is clear that the energy efficiency projects implemented have been small; and that barely half the company respondents can

claim to have been involved in projects of value greater than US\$ 50,000. This is consistent with the reality of the mostly small enterprises involved in energy efficiency in Mexico. Small companies are limited to small projects, due to cash flow limitations and their related inability to post larger bonds for the bigger projects. In fact, projects are sometimes separated into smaller chunks to ease smaller company participation.

Exhibit 8. Experience with Projects of Different Investment Levels



3.2.9 Technical Tools for Development of Energy Efficiency Projects.

Just less than half of the companies reported the availability of technical tools, such as measuring instruments, spreadsheet models, specialized software, or in-house software, related to the calculation, design or retrofit of lighting systems. It is these companies that would be of interest when looking for candidates for a lighting system services procurement as opposed to an equipment purchase.

3.2.10 Capacity to Finance Projects

Only three companies (16%) claimed the capacity to bring financing options to their projects, all through third-party financing institutions, and usually on a performance basis. They are Diram y Optima Energía that are ESCO-type consulting companies, and INELAP, a capacitor manufacturer that also offers innovative financing for its equipment,

Other consulting firms, such as Genertek, Consultores en Energía, Pro-Energía and Ergon Plús Ingeniería, have interests in developing commercial ties with financiers for specific projects, and have had experience in facilitating project financing for their clients through equipment manufacturers and/or FIDE.

The majority of the companies work on the commonly used system of an advance payment before starting the work, and a final payment on satisfactory delivery of the

product or installation. The advance amount varies but is typically 40-50% of the total cost of the contract.

3.2.11 Experience in Developing Projects under the ESCO Scheme

Only three companies have experience in the development of projects operating as an ESCO (i.e., with no client outlay for the project investment, but with performance payments based on measured savings). These are Diram, Optima Energía and INELAP, already mentioned in the previous section on financing.

One additional company, Ergon Plus Ingeniería, had implemented several ESCO-type projects, but has left this market due to bad experiences in collecting the performance payments. Pro-energía and Consultores en Energía said that they understood the ESCO operation, and had promoted such projects among their clients, but without success. In all of these cases, the experience has been purely with private sector clients; we found no evidence of attempts with the public sector.

The six companies (32%) that have been or are involved in the ESCO market all confirmed their interest in continuing to try to penetrate this market.

Of the remaining companies that have no ESCO experience, twelve confirmed their interest in learning about and participating in this market. Only one company (Interprise) stated that they have no interest in this type of business model.

Research indicates that there is one other company (on the database list but a non-respondent to the survey) that has maintained significant efforts in contracting with public sector entities over nearly 5 years. This company, Global Performance Solutions, has pioneered the analysis of the public sector procurement process, and proposed solutions to allow ESCO projects to be contracted. Global has made alliances with various equipment manufacturers, as well as different energy efficiency consulting firms at different times. Global has tried to deal with a number of different federal and public entities, ranging from social security hospitals to clinics to office buildings. They have facilitated proposals to PEMEX, both on the buildings side, and on the thermal process side (high efficiency burner installations). However, there is no evidence that any of Global's performance contract-based proposals have given fruit to date.

3.2.12 Monitoring and Verification of Energy Efficiency Projects

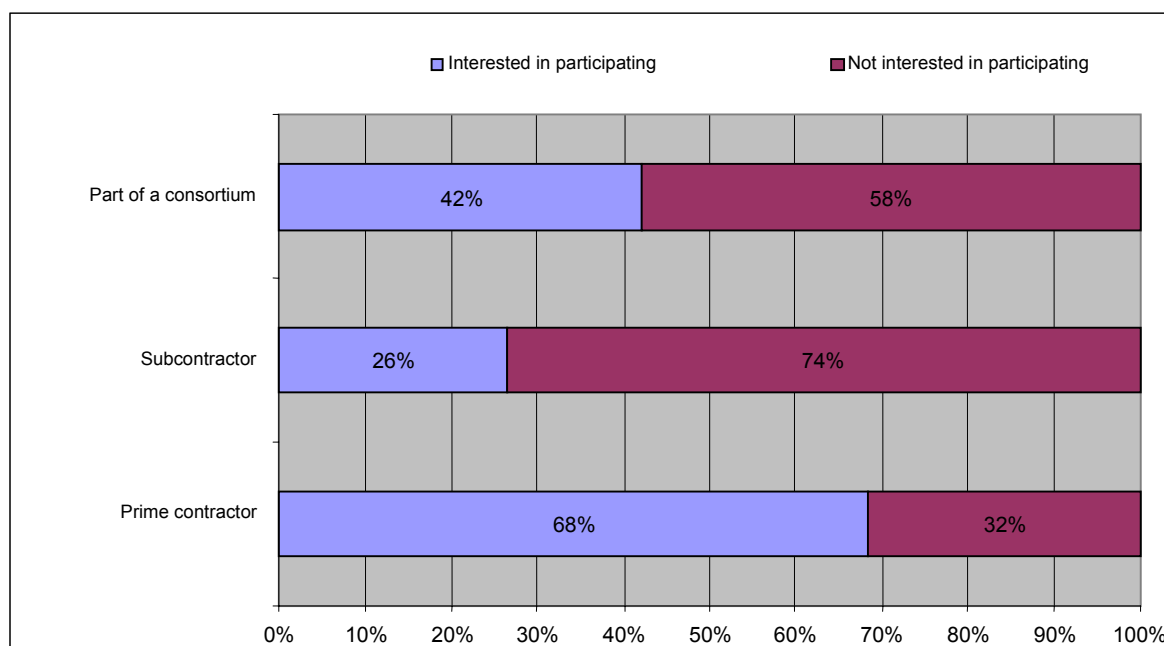
Twelve companies normally propose a follow-up monitoring and verification process to validate the results of their projects. The methods, however are not very sophisticated (as the market does not really require it). Most commonly, the monitoring consists of spot measurements of equipment operation and review of utility bills.

This result points out another important area of assistance needed for these projects. Monitoring and verification are fundamental to successful performance-based projects, and will need to be carefully prepared in the pilot facilities, and eventually in all replicated facilities.

3.2.13 Level of Interest in the Participation in ESCO Projects

The companies were asked to describe the level of interest they would have in an ESCO project, offering them three types of response to a bidding process: prime contractor; subcontractor, or part of a consortium. Thirteen companies (68%) are interested in participating as a prime; there is significantly less interest in the remaining two options, as shown in Exhibit 9.

Exhibit 9. Interest in Type of Participation in an ESCO Project



3.2.14 Preferred Types of Bids and Contracts

To attempt to understand better the willingness of the companies to participate in non-traditional types of contracts, including elements of ESCO-type arrangements, the survey probed specific types of contract payment arrangements under two schemes: a) a detailed equipment specification and procurement (e.g., lamps); and b) a system or service procurement (i.e., a system solution for improved energy efficiency).

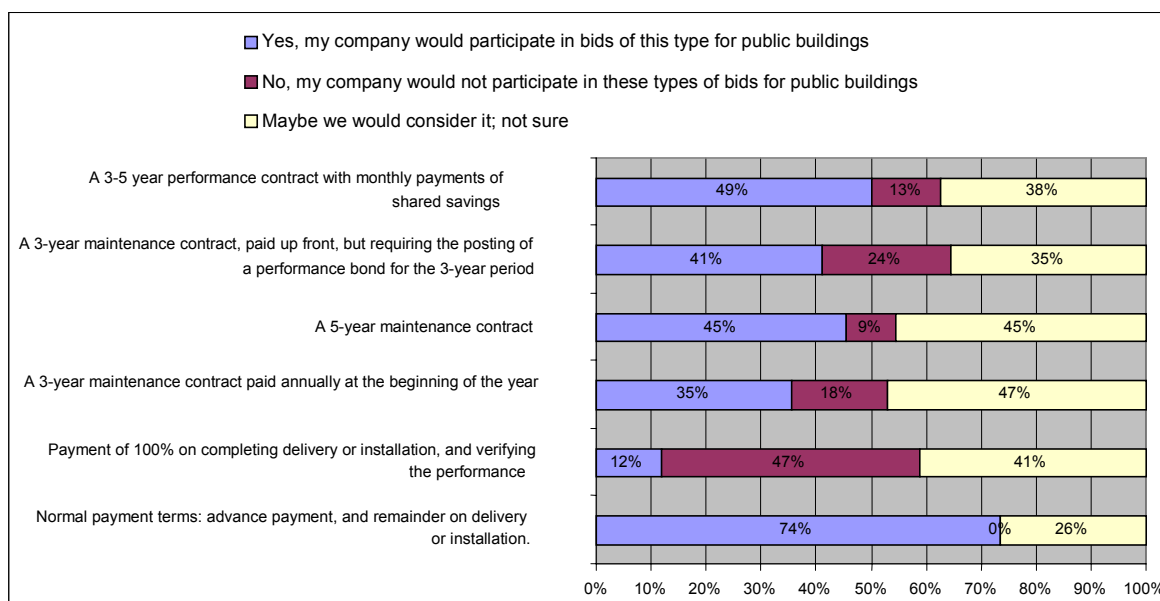
The responses to the first scheme, equipment procurement, were offered a number of contractual/payment options as shown in the results in Exhibit 10. This clearly indicates discomfort with any contract that does not provide the traditional advance payment to start the job, and full payment on delivery of the equipment. Three quarters of the companies would immediately use this system; no company would reject it. At the other end, it is worrisome that there are few companies interested in a contract that requires some financing, even if only for the short period of equipment procurement and installation: only 3 companies would accept this, and nearly half would reject it.

The response to the intermediate options also appears to trend with the concern about the cash flow. For example, the three-year maintenance contract paid up front is more attractive than an annually paid contract for the same period, even if it requires a bond. The ESCO shared-savings payments are more attractive (49%), possibly because they appear on a monthly basis, and therefore imply a regular cash flow, easing the greatest

fear of these small companies: non-payment. In fact, the responses appear to be inconsistent: the ESCO shared-savings mode, even if payments are obtained monthly, represents a much higher risk than an installation of several months with a single payment on successful completion. An explanation for this might be that the companies may not have fully understood the greater risk of the monthly payment ESCO example (after all, the majority do not have ESCO or performance contracting experience), and therefore showed the slight tendency toward preference of this mode over the application of financing the installation with payment in full at the end, based on performance.

The risk aversion of the companies is not the only worrisome result of this question. Nearly half of the respondents in most of the options simply “don’t know,” demonstrating an overall lack of knowledge and/or confidence about the opportunities presented. In this light, even the somewhat positive response to monthly shared-savings payments might be questioned: do the companies really understand what it takes technically and financially to develop a project with such a stream of payments?

Exhibit 10. Interest in Bidding or Contracting Options – Traditional Specification and Procurement of Equipment

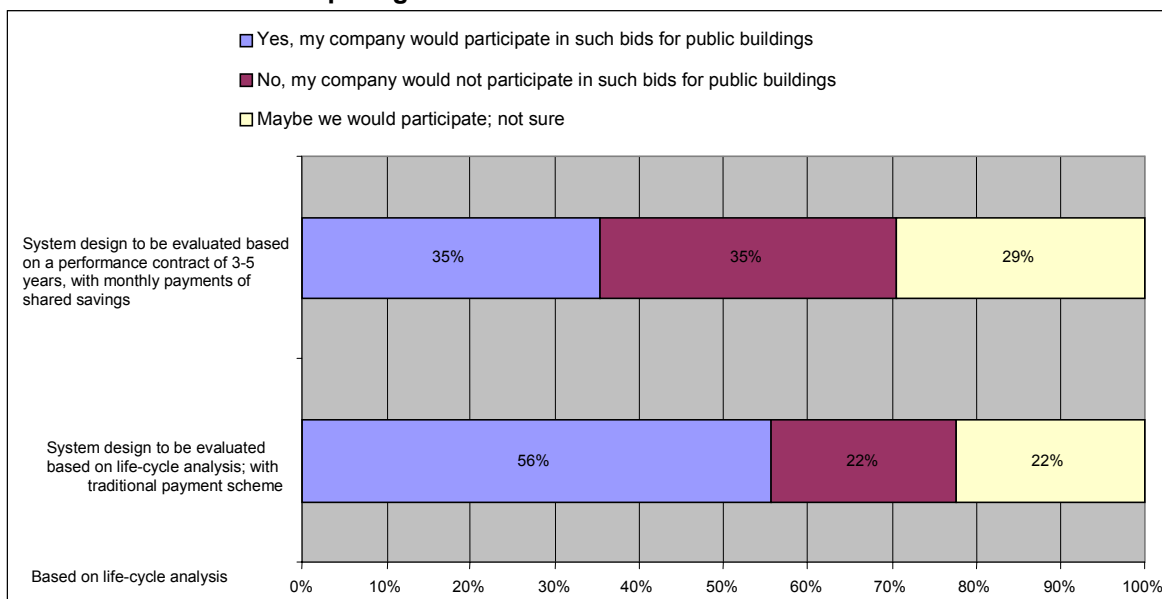


The second scheme presented the option of a bid or solicitation in which the desired results were specified (e.g., light levels, equipment quality), but leaving open the types, combinations and quantities of equipment required for the optimum solution at minimum energy consumption. This scheme offered two options: a life cycle cost evaluation for the selection criteria (implying a traditional payment scheme); and a performance contract for a period of 1-5 years, with payments based on actual savings.

As shown in Exhibit 11, the companies are clearly more comfortable with the traditional financial arrangements rather than the performance approach. Over half (56%) of the companies would participate in the traditional approach, while only a third (35%) for the performance approach. But this scheme of opening up the bid to make it less prescriptive also gives the companies pause. More companies would not bid this than in the previous scheme (except for the one option requiring financing over the procurement and

installation period). While the “maybes” have been reduced compared to the previous scheme, neither of these options provides a resounding positive response.

**Exhibit 11. Interest in Bidding or Contracting Options – Non-Prescriptive Specifications
Requiring a Solution based on Provided Criteria**



4 CONCLUSIONS

Mexico has a tremendous potential for extremely attractive energy efficiency investments in the public sector, based on a combination of high consumption (24% nationwide) and sky-high tariff levels (federal sector tariffs are 2.5 times the corresponding tariffs in the other sectors). This savings potential is initially estimated at over \$1.2 billion annually, and represents a market of nearly \$4 billion in investment. These numbers by themselves render worthwhile any attempts to find ways to incorporate private capabilities in energy efficiency under the ESCO principles of financing and performance-based payments.

Nevertheless, the survey shows Mexican national experience in ESCOs to be quite limited, with only two companies demonstrating familiarity and experience with ESCO projects. These two companies have developed performance-based efficiency projects, primarily in the private hotel sector, in areas of lighting, air conditioning, motors and drives, and cogeneration. A third company has also implemented power factor correction projects based on a shared savings approach, similar to that of an ESCO. These companies have the human, technical, and financial resources to participate in ESCO-type contracting in the Mexican public sector.

There also exists an important group of energy efficiency consulting companies, with broad experience in the national market. These have developed and implemented a variety of energy efficiency projects, and offer capabilities for optimizing the designs, determining baselines, and verifying results. The projects implemented by these companies have been largely financed by FIDE and its variety of loan programs for private sector energy users.

A number of these companies have promoted performance contracting, but without success so far. None have fully invested in this option, needing to respond to the traditional market projects in order to survive. At least one of these companies has had disappointing experiences with small initial projects of this type, and is no longer actively promoting such projects. They recognize that they do not have the requisite capacity to bid on ESCO-type projects, but all are open to the establishment of commercial partnerships (with financing institutions and/or equipment vendors, for example). However there has been no market driver for them to do so thus far.

No ESCO experience exists among the four large lighting equipment providers that responded to the survey. Their commercial and business policies impede their direct participation in projects, but they are willing to provide any necessary support to their distributors and discuss with consulting firms the possibility of participating in performance-type bids in the public sector. Still, only one of these companies said that they could obtain capital in order to finance projects.

Electrical contractors offer little experience specifically in energy efficiency, but expressed a general openness to associate with commercial partners, for example, consulting firms, to participate in ESCO-type bidding projects focusing on installations.

Despite the willingness and interest expressed by the companies to participate and collaborate in bidding on performance-type projects, the results of the survey show the magnitude of the task ahead:

- Short-term cash flow is the primary concern of a majority of these companies; all appear to be struggling to survive in a Mexican energy efficiency market that does not appear to be very strong or active.
- Projects implemented by these companies are by and large quite small, with only half the respondents having experience implementing projects larger than \$50,000.
- Both technical capabilities (audits, monitoring and verification) and market capabilities of the local firms appear to need strengthening.
- Although the initial survey target was a list of 45 companies with energy efficiency experience and potential interest in the ESCO market, only 42% responded, despite repeated efforts to contact them over a two-month period. This leads to speculation that:
 - Companies may not believe there to be much of a future in the federal or public sector, given contracting complications.
 - Many companies may not see the ESCO or performance contracting market as interesting or viable for them.
 - There may be some fatigue with donor and government ESCO promotion programs, as there have been a number of such programs over the years.
 - Companies may be diversifying, or evolving away from energy efficiency activities as a mainstay of their business.
 - There does not appear to have been much competition on the open market for energy efficiency work. This may be a consequence of the large effect FIDE has on this market, consolidating financing and projects throughout the private and municipal sectors, and hiring consultants and (more often) equipment providers to analyze and implement efficiency projects.
- An overall impression of the survey is that the responses from the companies that participated (supposedly motivated by their interest in the energy efficiency market), is rather lackluster. Detailed information was extremely difficult to obtain. The responses do not show much thinking and development in new markets for energy efficiency. Large fractions of “don’t knows” in the final question might imply openness but could just as easily be explained as complacency.

In summary, the survey results indicate that there remains tremendous potential cost and energy savings to be gained in the public sector. Furthermore, there appears to be sufficient interest and some capability among existing energy service providers and equipment suppliers to identify, design, finance and deliver sound projects using some performance-based mechanisms that many public sector facility officers would find attractive. However, the findings also provide a sobering view of the current market and show signs of limited interest and credibility in the ESCO market.

Moving ahead, there are clearly major efforts required to improve the basic understanding of viable business models to deliver energy efficiency projects in both public and private sectors. However, it would also appear that USAID’s proposed approach of seeking to identify 1-2 public facilities and issuing requests for proposals that would allow potential bidders to propose alternate designs, financing options and payment plans is warranted, and should help lead to more tangible results while helping to further develop the nascent ESCO industry. A well-designed bidding process, combined with some targeted technical assistance and perhaps a more informative and training-oriented pre-bid conference (to

bridge information gaps, clarify risks and requirements on both company and client side, show sample contracts and financing schemes, etc.) along with as needed advice to address arising problems and issues during the bidding, evaluation, contract negotiations and implementation/commissioning will be essential. This would hopefully then lead to a few specific example projects, which can be documented and disseminated to show how the bidding process was organized, results of the bids, the negotiated contractual mechanism, project financial structuring and results. Such an approach would also then provide the validation for additional ESCO support, financing programs and policy statements to further encourage ESCO projects and performance-based contracting in the public and private sectors.

ANNEXES

A.1 Summary List from Database of Companies which Offer Energy Efficiency Services in Mexico

ID	Company Name	Contact Person	Address	Tel./Fax	E-mail	Web Page
1	Acuity Brands	Ing. Jesús Gloria, Gerente de Desarrollo de Mercado	Lago Victoria No. 74 Col. Granada, 11520 México, D.F. México	Tel: (55) 5250-6214, Fax: (55) 5250-6214	sferro@acuitybrands.com.mx	www.acuitybrands.com
2	Aguisa	Consultor, Joseph Charles Rubenak Vargas	José Joaquín Arriaga No. 32-A, Col. Obrera, México DF., CP 06800	Tel: (55) 761-03-70 Fax: (55) 578-92-32	rubenak@prodigy.net.mx	
3	Asesoría y Diagnóstico Industrial, S.A. (ADISA)	Ing. Francisco González A., Jefe De Proyecto Ing. Diego Félix González Aguilar, Gerente General	Calle 17 No. 83 Col. Progreso Nacional, 07600, México DF., CP 07600	Tel/Fax: (55) 5391-62-89		
4	Avant Garde Technologies, S.A. de C.V.	Ing. Marco Góngora, Director General	Martí # 53, Col. Escandón, Mex. D.F. C.P. 11870	Tel: (55) 5276-1238 Ext 110 Fax 56119446		
5	Claremant, S.A. de C.V.	Ing. Jesús Reyes Loyo / Director	Eduardo Gerner #23 Col. Pino IMPI, del Iztacalco	Tel: (55) 57 11 86 15 Cel. 44525046605 Fax. 55-43 62 02		
6	Consejeros y Asesores Asociados, S.C.	Lic. Miguel Ángel Reta Martínez, Director General	Iglesia No. 2 Desp. 101, Tizapan, México, DF., CP 01090, Deleg. Álvaro Obregón	Tel: (55) 5550-62-80, 5550-45-67 Fax: 5550-45-33	conasas@conasas.com.mx	
7	Consultor Independiente	Ing. Carlos A. Maigler		Tel: (442) 2 18 0549 / Fax: (442) 2 18 37 17		
8	Consultores en Energía S.A. de C.V.	Ing. Manuel de Diego Muñoz	Manuel M. Contreras No. 66-PI, Col. San Rafael, CP 06470, Del. Cuauhtémoc, México, D.F.	Tel: (55) 5566-9418 / 5562-6192 / 5566-2678		
9	Consultores en Iluminación Profesional	Alejandro Ochoa, Compras	Miguel Bernard No. 41, Magistral Vista Bella, 54050 Tlalnepantla, Edo. de Méx. México	Tel: (55) 5398-3415, 2628-2197, 2628-2198 Fax: (55) 2628-2199		
10	Digenia Compañía, S.A. de C.V.	Ing. Luis Gulchard	Paseo Uzumacinta 301, Col. 1° de Mayo, CP 86190, Villahermosa Tabasco	Tel: (99) 3315 6412	lguichard@digenia.com	
11	Diram, S.A. de C.V.	Ing. Luis Ramón	Guillermo Prieto #150, Col. Palo Blanco, Garza García, N.L.	Tel: (81)-8338-8688 8338-9025		
12	Electroluz	Ing. Juan Manuel Lucía Ibarra / Director	Topilejo 105, Col Lomas de Chapultepec C.P 11000	Tel: (55) 55 40 52 35 Fax: 52 02 45 90	elecoluz@prodigy.net.mx	
13	Enerlux, Ahorradores de Energía	Ing. Jorge Manuel González y Vicente / Director	Aldama 74-3 Col. Del Carmen Coyoacán, México DF., CP 04100	Tel: (55) 55 54 42 55 Fax: 56 58 84 31	jorge_enerlux@cablevision.net.mx	
14	Entidad de Control y Asesoramiento S.A. de C.V.	Ing. Guillermo Rangel Lincoln Strange, Representante Del Director General	Melchor Ocampo No. 193, Torre A Piso 3 Desp No. B, Col. Verónica Azules, México DF	Tel: (55) 91170526, 91170527	inspeccionecad@terra.com.mx	
15	Ergon Plus Energía, S.A. de C.V. (CSI)	Ing. Ramón Rosas Moya, Director General	Bugambilias No. 607, Flores del Valle, Veracruz, Ver., CP 91948	Tel: (229) 130 3377		
16	Everlux	Lic. Hilda Ávila, Gerente de Admon.	Porfirio Díaz No. 347 Ote. Col. Centro, 66230 San Pedro Garza García, N.L.	Tel: (81) 8192-0301, 8192-0302, 8192-0303 Fax: (81) 8989-8464	info@solatube.com.mx	http://www.solatube.com.mx
17	Gabriel Velasco Moreno (Antes Vos Iluminación S.A. de C.V.)	Sr. Gabriel Velasco Moreno, Gerente General	División del Norte No. 143 – B, Col. Del Valle, 03100, México D.F.	Tel: (55) 55360933 Fax: 55360854	vel_lighting@prodigy.net.mx	http://www.accesslighting.com.mx
18	Ge Comercial Materials, S.A. de C.V.	Ing. Roberto Torrijó	Av. Churubusco 3400 Nte, Monterrey, N.L.	Tel: (81)-8318-5600, 8318-5600 Fax: 57 59 35 11		
19	Genetrek, S.A. de C.V.	Ing. Alex Ramírez Rivero	Buen Tono no. 109 Col. Industrial	Tel: (55) 57 59 35 11, 55 37 18 77 Fax: 57 59 35 11	genetrek@avantel.net	
20	Global Performance Solutions	Alejandro Gutiérrez Pérez Director General	Oriente 245 número 165 C.P. 08500, México, D.F.	Tel/Fax: (55) 5763-0731, 5552-7239		
21	Iluminación Proyectos e Instalaciones, S.A. de C.V.	Ing. Ignacio Lepe Escobar Director General	Av. Aztecas No. 376, 1er. Piso Col. Ajusco Coyoacán, 04300 México, D.F. México	Tel: (55) 5421-3303 Fax: (55) 5619-2984		www.iluminacionproyectos.com
22	INELAP	Ing. Santiago Barcón, Dirección General	Calle 2 No. 7, Fraccionamiento Alce Blanco, Naucalpan, Edo. de México, 53370	Tel: (55) 5093 2242 / 43 / 38		www.inelap.com.mx
23	Ingeniería Energética Integral, S.A. de C.V.	Ing. Alfredo Aguilar Galván, Director General	Lucerna No. 62 - 503, Col. Juárez, México, D.F., CP 06600	Tel: (55) 57 05 21 61, 57 05 17 06 Fax: (55) 57 05 16 89	alfredo.aguilar@usa.net	www.energeticaintegral.com/
24	Italux Iluminación	Arg. Liliana González de la Cueva	Calle Pino No. 85 BIS, Esq. Río Mixcoac, Colonia Florida, D.F.	Tel: (55) 5662 8472, 5661 7107	italuz@prodigy.net.mx	http://www.italux.com.mx

*Market Study on Potential Energy Services Providers
for the Public Sector in Mexico*

ID	Company Name	Contact Person	Address	Tel./Fax	E-mail	Web Page
			01030, México D.F.			
25	Jonson Controls	Ing. Miguel Ángel Reyes Rodal, Gerente de Ventas y Sistemas	Oficina Lomas de Chapultepec: Montes Urales No. 530, Lomas de Chapultepec, 11000, México, D.F.	Tel: (55) 5249-8200, 5249-8229 Fax: (55) 5202-1761		
26	Jr Enterprise	Sr. Juan Rodríguez Ó Javier Vertti	Jacarandas No. 41 Col. Jardines de Alizapán, 52978 Alizapán de Zaragoza, Edo. de Méx. México	Tel: (55) 5824-3765, Fax: (55) 5824-3766		
27	Mantenimiento Eléctrico Industrial Sistematizado, S.A. De C.V. (MEISSA)	Efraín Huesca Lagunes, Director General	Salvador Díaz Mirón No. 52, Sta. María La Ribera, México, DF 06400	Tel/Fax: (55) 5560 7311 / 55601450		
28	Marca, Electrodistribución y Control, S.A. de C.V.	Arq. Juan Carlos Cantón Arenas (Gerente de Ventas)	Av. San Bernabé No. 123, 2do. Piso, Col. San Jerónimo Lídice, 10200, México DF	Tel: (55) 5681 5391, 5681 4621, 5681 5016 Fax: 5681 5597	jcanton@marcaelectro.com; ventas@marcaelectro.com	www.marcaelectro.com
29	Oclavo Arte	Ing. Jean Paul Freyssonier / Director	Marcos Carrillo 220 Col. Asturias México DF, CP 06850	Tel: (55) 5740 8997 Fax: 5740 8997	freysj@pi.edu	
30	Optima Energía	Ing. Enrique Gómez Junco, Director General	Hidalgo 916-B, Col. La Fama, Sta. Catarina, NL 66100	Tel: (81) 8336-2233 con 0 Líneas, Fax: (81) 8336 1205	optimaenergia@optimaenergia.com	www.optimaenergia.com
31	Osram	Ing. Antonio González, Ing. Ricardo Romero	Camino a Tepalcapa #8, Colonia San Martín, Municipio de Tultitlán, Estado de México, C.P. 54900. Apdo. Postal #10	Tel: (55) 5899-1809 Fax: 5899-1900	romeror@osram.com.mx	
32	Peber Iluminación, S.A. de C.V.	Raúl Arroyo	Av. Interceptor Poniente No. 16, Fraccionamiento Industrial Cuautitlán Izcalli, CP 054730	Tel: (55) 5872-6066 5872-69845		
33	Philips Mexicana, S.A. de C.V.	Ing. Ricardo Carrillo Ing. Germán Villalobos Alarcón	Av. La Palma No. 6 San Fernando, La Herradura, CP 52784 Huixquilucan, Edo. Mex.	Tel: (55) 5269-9000, 5269-9139 / 5269-9150	ricardo.carrilloanaya@philips.com	www.philips.com.mx
34	Pluz S.A. de C.V.	Lic. Pablo Coblan Orendai	Av. Interceptor Poniente No. 16, Fraccionamiento Industrial Cuautitlán Izcalli, CP 054730	Tel: (55) 5872 8066 Fax: 5872 6945	pluz@pluz.com.mx	www.pluz.com.mx
35	Pro-Energía, S.A. de C.V.	Ing. Enrique Hernández V. Ing. Mejía, Director General	Playa Azul S/N, Col. La Bomba, Chalco Edo. México	Tel: (55) 5975-6415 / 5975-6297	pro_energia@hotmail.com, proenergia@prodigy.net.mx	
36	Promoción y Control Profesional, S.A. de C.V. (Pcp)	Ing. Jorge Nevárez Jacobo, Director General	Latinos Num. 174-A Col Moderna, 03510 México, D.F. Oficina: Puebla # 308-B, Col. Roma, 06700, México, D.F.	Tel: (55) 9149-1115/ 5207-9991		
37	Proyectos Lumínicos y Representaciones, S.A. de C.V.	Ing. Sergio Arturo García Anaya, Gerente General	Vía Adolfo López Mateos No. 72, Fracc. Jardines de San Mateo, Naucalpan, Edo. Mex. 53240	Tel: (55) 5560-9136, 5373-2431, 5360-9247 Fax: 5360-5373	sagaprolur@prodigy.net.mx, prlur@prodigy.net.mx	
38	Quintana Ingenieros, S.A. de C.V.	Ing. Andrés C. Quintana Ascencio, Director	Bahía Magdalena No. 59, Verónica Anzures, México, D.F., 11300	Tel: (55) 254-10-89 Fax: 545-17-85		
39	Ramírez Galán Miguel Ángel Ing.	Consultor	Amatista 36-B, Estrella, México, D.F., 07810	Tel: (55) 5781-7638, 5579-5256, 5514-2970		
40	Siemens	Ing. Javier Martínez Mata I&S Ups/See Ing. Antonio López Pérez, Gerente de Servicio Ums/Sbt,	Sede y Oficina Central en México: Poniente 116 No.590, Col. Industrial Vallejo, 02300 México, D.F.	Tel: (55) 5328 2000, Fax: (55) 5328 2192 y 93	www.siemens.com.mx	
41	Sistemas de Energía Internacional, S.A. de C.V. (SEISA)	Ing. Jorge Gutiérrez Vera, Director General	Carr. Miguel Alemán Km 16.5, Parque Ind. Almacentro, Ave E-101 Apodaca, N.L. 66600 México,	Tel: (81) 8369 3939, 8344-2029 Ext 109 Fax: 8344-2019		http://www.seisa.com.mx
42	Telvenex, S.A. de C.V.	Ing. Juan Carlos González Mata/ Director	Calzada de Tlalpan No. 1929 Col. Parque San Andrés Coyoacán, Deleg Coyoacán, C.P. 04040	Tel: (55) 5549-6960	gonzalez@telvenex.net	
43	TRG Tecnologías S.A de C.V (Antes: Technomega)	Ing. Raúl Romero García, Director General	Av 1 No. 86 Desp. 11, San Pedro de Los Pinos, México, D.F., C.P. 03800	Tel: (55) 5644-00-33, 5644-58-00 Ofic. Dir: 55159986 Fax: 5644 58 00	tecnomegamedia@gm ail.com, raulromero@trgleconog las.com.mx	
44	Vega Machorro	Ing. Álvaro Vega Machorro	Playa Hornos No. 293, Col. Reforma Iztlachualti, México D.F., C.P. 08810	Tel: (55) 5696 0186 Fax: 5696 0597	vema_19@prodigy.net vema19@aol.com	
45	Zeus Automatización S.A. de C.V. (Antes: SESYC Electrónica Industrial, S.A. De C.V.)	Ing. José Ismael Morales Sandoval, Gerente General, Ing. José Ismael Morales Sandoval, Gerente Administrativo	4 Norte No. 1202-201, Col. Centro, Puebla, Pue. 72000	Telefax: (22) 2232-2706, 2242 4465, 2246 6762 / 2246 5430 Fax: (22) 2246 5430	imorales@zeus-automatizacion.com	

Note: respondents to the survey are identified by a shaded identification number

A.2 Survey Guide Applied to Energy Services Providers

Introducción

Para conocer los Servicios de Eficiencia Energética que se ofrecen actualmente en el mercado nacional y estimar su potencial para realizar proyectos bajo el esquema de Desempeño Garantizado (ESCO), la Comisión Nacional para el Ahorro de Energía (CONAE) y la Agencia de los Estados Unidos para el Desarrollo Internacional (USAID) están impulsando la ejecución de Proyectos Piloto en edificios.

El Proyecto tiene como objetivo la reducción en el consumo de energía eléctrica y por ende en los costos operativos en dos inmuebles, a través de la contratación de Proyectos de Desempeño Garantizado de Eficiencia Energética, mediante un proceso de licitación donde se especificarán los servicios a contratar.

Para estimar la oferta de servicios de Desempeño Garantizado de Eficiencia Energética se elaboró la presente encuesta con la finalidad de conocer las capacidades y experiencias de las empresas potenciales.

Instrucciones: Contestar el siguiente cuestionario y enviarlo vía fax al (55) 51 48 93 85, o por correo electrónico a: cyste@cyste.com.mx

Nota Importante: La información que nos proporcione será utilizada de manera confidencial y únicamente para uso interno del Proyecto, la cual no se divulgará a ninguna otra instancia.

Nombre de la Empresa:

Dirección:

Teléfono:

Fax:

Contacto:

No. de Empleados:

Descripción general de la empresa:

1.- ¿Cuál es el giro de su empresa?, seleccione más de una opción si es el caso:

- ☐ Representante/proveedor de equipo
- ☐ Contratista de obra eléctrica/mecánica

- ☐ Firma de Consultoría
- ☐ Proveedor de servicios en mantenimiento
- ☐ Proveedor de Servicios Financieros
- ☐ Otros, Explique_____

2.- Durante la realización de sus proyectos, ¿subcontrata alguno de los servicios que ofrece?, ¿cuáles y por qué?

3.- Marque el tipo de tecnologías y/o equipos que comercializa en sus proyectos

- ☐ Iluminación interior
- ☐ Iluminación exterior
- ☐ Aire Acondicionado
- ☐ Instalaciones eléctricas
- ☐ Generación de energía eléctrica
- ☐ Calidad de la energía
- ☐ Corrección del Factor de Potencia
- ☐ Control y automatización para el ahorro de energía (especificar de que tipo):

Otros servicios (especificar de que tipo):

4.- Si es representante/proveedor de equipo, indique las marcas que maneja y dentro de qué clasificación se encuentran, tomando como referencia las categorías indicadas en la pregunta anterior.

5.- ¿Tiene experiencia trabajando en la implementación de proyectos de Eficiencia Energética en los Sectores Público o Privado?

	Sector Público	Sector Privado
NO		
SÍ		
Número de Proyectos		

6.- ¿Cuántos proyecto ha desarrollado en cada sector y qué tecnologías y/o equipos ha aplicado?, explique

	Sector Público	Sector Privado
Equipo		
Tecnología		

7.- Señale si tiene experiencia en proyectos con los siguientes servicios:

- ☐ Proyectos Nuevos – diseño de Iluminación interior y/o exterior
- ☐ Suministro e instalación de lámparas y balastros
- ☐ Sólo suministro de lámparas y balastros
- ☐ Mantenimiento a equipo de iluminación
- ☐ Retrofit – modificación del sistema de iluminación ya existente
- ☐ Monitoreo y verificación de ahorros
- ☐ Mantenimiento a equipo de iluminación
- ☐ Otro, especifique:

8.- Con referencia a la pregunta anterior ¿de qué magnitud son los proyectos que ha desarrollado (moneda nacional)?

\$5,000 ≤ proyecto < \$50,000	número de proyectos _____
\$50,000 ≤ proyecto < \$100,000	número de proyectos _____
\$100,000 ≤ proyecto < \$500,000	número de proyectos _____
mayores a 500,000	número de proyectos _____

9.- En los proyectos de iluminación, diga en cuál de los siguientes casos hace uso de equipo de medición (medidores de potencia eléctrica, luxómetro, etc.) y/o software:

Cálculo de iluminación	medición ____	software, hojas de cálculo, programa propio ____
Rediseño en la iluminación	medición ____	software, hojas de cálculo, programa propio ____
Retrofit	medición ____	software, hojas de cálculo, programa propio ____
Otro (especificar)	medición ____	software, hojas de cálculo, programa propio ____

10.- ¿Tiene capacidad para financiar proyectos de Eficiencia Energética?

- ☐ No
☐ Sí

En caso afirmativo, especifique su política para dicho financiamiento y el monto máximo del mismo, así como el plazo de financiamiento de la inversión.

Especifique su política para otorgar financiamientos (Indicar si la política depende de la tecnología o de alguna otra variable; definir dicha variable)	Monto Máximo a Financiar	Máximo plazo de financiamiento, años

11.- ¿Usted ha manejado o podría manejar el esquema ESCO, en el cual se ofrecen proyectos de ahorro de energía sin inversión por parte del cliente y en la que los pagos de ésta están en función de los ahorros comprobados?

- ☐ Sí lo ha hecho, e interesa hacer más
☐ Sí lo ha hecho, pero no le interesa más
☐ NO, no lo ha hecho, pero le interesara entrar en este mercado
☐ NO, no lo ha hecho, ni tiene interés en hacerlo

12.- ¿Ha desarrollado proyectos bajo este esquema en México en el sector público o privado?, mencione y describa los proyectos.

13.- Al término de sus proyectos ¿tiene contemplado el seguimiento y verificación para validar los resultados evaluados en su propuesta?, tales como: los niveles de iluminación en las áreas de trabajo, los ahorros energéticos y económicos, así como la rentabilidad del proyecto.

- ☐ No
☐ Si

Si su respuesta es sí, describa el método de seguimiento y verificación de los ahorros.

Describa:

14.- En caso de participar en una licitación o cotización ¿su intervención sería como?:

- ☐ Contratista Principal
☐ Subcontratista
☐ Parte de una Asociación de Empresas que licitarían
☐ Describir _____

15.- De las posibles licitaciones o cotizaciones que se están considerando en edificios, ¿en cuáles de las siguientes opciones (A y B) considera que participaría su empresa?, marque sí, no, tal vez, o incluya algún comentario).

A) Instalación de un sistema de iluminación, aire acondicionado, etc., por licitación o cotización basada en un estudio detallado que especifica el equipo a proveer y bajo los siguientes esquemas de servicio y pago :

- con términos normales de pago, es decir, anticipo y pago restante al completar la instalación.

☐ Sí ☐ No ☐ Tal vez

Comentario: _____

- con pago de 100% al finalizar la instalación, mediante la comprobación de su desempeño real por 30 días.

☐ Sí ☐ No ☐ Tal vez

Comentario: _____

- con un contrato de mantenimiento de 3 años pagado éste y la instalación anualmente al principio del año.

☐ Sí ☐ No ☐ Tal vez

Comentario: _____

- con contrato de mantenimiento de 3 años, pagado totalmente en el primer año, pero amparado con una fianza por el proveedor, válida por 3 años.

☐ Sí ☐ No ☐ Tal vez

Comentario: _____

- con contrato de desempeño de 3-5 años y pagos mensuales o trimestrales basados en ahorros comprobados

☐ Sí ☐ No ☐ Tal vez

Comentario: _____

B) Diseño e instalación de un sistema de iluminación, con base en una licitación o cotización que únicamente especifica los niveles de iluminación y la calidad de los equipos.

- con una evaluación del costo más atractivo en su ciclo de vida, es decir, que la licitación o cotización pedirá una propuesta de solución y no sólo una lista de equipos.

☐ Sí ☐ No ☐ Tal vez

Comentario: _____

- con contrato de desempeño de 1-5 años y pagos mensuales o trimestrales basados en ahorros comprobados

☐ Sí ☐ No ☐ Tal vez

Comentario: _____

16.- Estamos abiertos a cualquier comentario adicional.

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